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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,102	03/02/2002	Alex G. Zeif	20110/00401	4425

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EXAMINER	
ASSOUAD, PATRICK J	
ART UNIT	**PAPER NUMBER**
2857	

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/090,102	ZEIF, ALEX G.	
	Examiner	Art Unit	
	Patrick J. Assouad	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-24 and 34-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-24 and 34-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to Applicant's Response filed 4/12/05. Claims 18-24 and 34-46 are pending.

Response to Arguments

2. Applicant's arguments filed 4/12/05 have been fully considered but they are not persuasive. Applicant states:

> None of these databases are described as including equipment information. There is no description in Musafia which even refers to equipment that may be on a production line, yet alone the collection of data about such equipment... A review of Lin shows that none of this data relates to equipment on the production line...there is no discussion in Szabados about the monitoring or collection of equipment information...the applicant respectfully submits that Musafia, Lin and Szabados, either alone or in combination do not teach or suggest "collecting real time equipment information from a production line" as recited in claim 18... Independent claim 43 recites the same limitation as claim 18, i.e., collecting real time equipment information."

3. Applicant's sole argument is that the prior art relied upon in the Examiner's rejection does not show "collecting real time equipment information from a production line." Applicant is directed to at least the following from Musafia, Szabados, and Lin:

From Musafia et al. [with emphasis added]:

> Summary of Invention Paragraph - BSTX (4):
> [0003] The provision of a service or the production of a product often includes a number of tasks that must be performed, often in series. Particularly for products and services that are produced in quantity, the effort required to perform the predetermined tasks can be monitored to analyze many factors related to production. Over time, the collection of production data allows the calculation of expected costs, times, and other production aspects. As production continues, current values can be compared with expected

values to assess whether individual workers or the system as a whole is progressing efficiently.

Summary of Invention Paragraph - BSTX (5):
[0004] In pre-computer times, data collection and analysis was limited to handwritten worker or supervisor collection and fraught with errors and bad judgment. Computers have brought improvement and, in some cases, allow businesses to monitor and analyze certain manufacturing data.

Summary of Invention Paragraph - BSTX (7):
[0005] The present invention comprises a system and method for monitoring and optimizing product or service output and worker productivity for a business in which products and services are produced in a manner that involves a plurality of tasks and which can include multiple workers involved simultaneously in the manufacture of a single product. Productivity is optimized by the collecting, analyzing, and reporting a variety of data.

Summary of Invention Paragraph - BSTX (14):
[0012] In accordance with still other aspects of the invention, the use of multiple cost databases, linked to user-determined and computer-determined parameters, allows the monitoring of the use of materials and supplies on the production line to determine flawed or inaccurate supplies or wasteful or inaccurately planned manufacturing processes.

Detail Description Paragraph - DETX (18):
[0044] At block 150, the memory includes a Materials and Supply Inventory Database (MSDB). The MSDB contains inventory and cost information of all materials and supplies required to manufacture product items.

Claims Text - CLTX (2):
1. A method for monitoring productivity, the method comprising: collecting data from a plurality of production sources; storing the data in one or more databases; and determining system productivity values.

Claims Text - CLTX (7):
6. The method of claim 1, wherein the data collected is associated with one or more products being produced.

Claims Text - CLTX (8):
7. The method of claim 6, wherein the data associated with one or more products being produced further comprises components required to produce the product.

Claims Text - CLTX (57):
56. The method of claim 21, wherein the data is from real-time product or service output and worker productivity for a business in which products and services are produced at least partly serially.

From Szabados:

> *Abstract: A large amount of information is required to effectively manage a flexible asynchronous production system, such as a Car Assembly Plant in Oshawa, Ontario. Such system is highly influenced by human factors. An Intelligent Production Monitoring System (IPMS) was developed specifically for this production system. IPMS is a medium for presenting a vast amount of relevant, real-time and historical production information to the Car Plant management staff. Together with the standard predictive on-line models it allows experienced supervisory staff to arrive at operational decisions during shifts.*

Most noteworthy from Szabados is that the Intelligent Production Monitoring System (IPMS) "was designed as a medium for presenting a vast amount of real-time and historical production information to the Car Plant management staff." See at least pg. 35. The real-time information must be and is derived from sensors connected to manufacturing equipment around the car manufacturing plant.

And finally, from Lin et al.:

"...the factory under study has multiple production lines in separate area. Function of the proposed system is to monitor quantities of all check points in [the] production line..." (Abstract)

"...The local measurement unit (LMU) possesses the capability for measurement, data buffer, production flow counts, process control, and data transmission...The measurements in the production line can possibly be DC voltage and current, or AC voltage and current..." See at least pgs. 58-59.

"...This measurement system is designed to improve the monitor and measurement technique in a labor-dependent production line..." (Conclusion, pg. 61.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 18-24 and 34-46 rejected under 35 U.S.C. 103(a) as being unpatentable over Musafia et al.(US 2002/0038235-a1) in view of either Lin et al. ("A PC-based Real Time Measurement System for Factory Automation on quality Control and Production Control, IEEE, 1989) or Szabados ("Intelligent Monitoring System Used to Control Asynchronous Production Systems", IEEE, 19-20 May 2001).

6. Musafia et al. disclose:

A production monitoring system collects an array of data related to employee productivity, wages, supply usage, costs, desired profits, overhead, customer information, and other information pertinent to operating a manufacturing operation of service industry. The data is analyzed to derive a variety of productivity values such as average worker efficiency, production incentives, material costs, supply waste, and others. The system audits productivity data entered by workers, and sounds alarms when the data appears to be incorrect. Supply usage rates are calculated and additional supplies are automatically ordered. Estimated prices and delivery times are determined based on historical data and user-supplied safety margins and profit margins. [Abstract, with emphasis added]

7. Figures 1-2 of Musafia et al. are reproduced below.

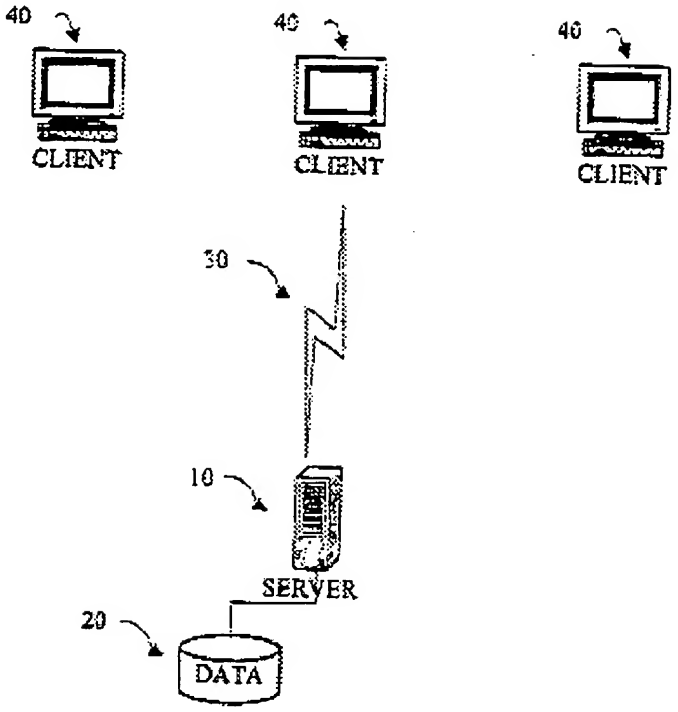

FIG. 1

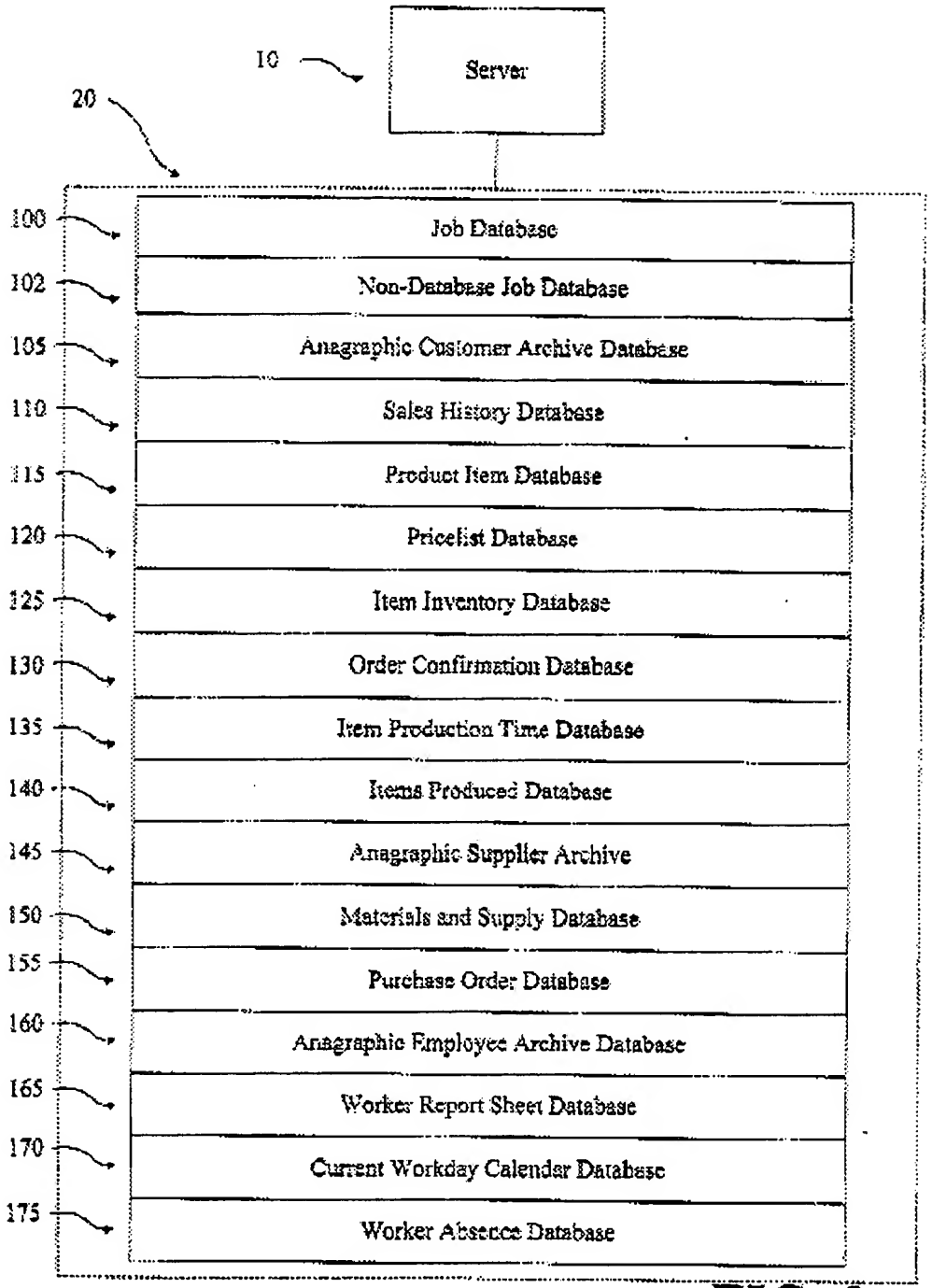
10
Server
20
100
Job Database
102
Non-Database Job Database
105
Anagraphic Customer Archive Database
110
Sales History Database
115
Product Item Database
120
Pricelist Database
125
Item Inventory Database
130
Order Confirmation Database
135
Item Production Time Database
140
Items Produced Database
145
Anagraphic Supplier Archive
150
Materials and Supply Database
155
Purchase Order Database
160
Anagraphic Employee Archive Database
165
Worker Report Sheet Database
170
Current Workday Calendar Database
175
Worker Absence Database

FIG. 2

8. The association between the instant claimed invention (independent claims 18 and 43) and Musafia et al. is as follows:

a) "collecting real time material information from a production line"; see at least the data collected from a production line and then stored in the materials and supply database 150;

b) "analyzing the real time material information to determine a material cost"; see at least the purchase order database which includes materials and supplies and prices and/or the product item database which contains a listing of all materials and supplies necessary to manufacture a production item and/or the materials and supply inventory database which contains inventory and cost information of all materials and supplies required to manufacture a product;

c) "collecting real time operator information from the production line"; see at least the numerous worker-related production data collected from a production line, and then stored in at least worker report sheet database 165;

d) "analyzing the real time operator information to determine an operator cost"; see at least the worker cost of labor parameter or other numerous worker cost parameters;

e) "collecting real time equipment information from the production line"; see at least the supply or equipment-related data collected from a production line and then stored in at least the materials and supply inventory database;

f) "analyzing the real time equipment information to determine an equipment cost" and "collecting real time indirect cost information from the production line"; and "analyzing the real time indirect cost information to determine an indirect cost"; see at least the numerous cost calculations involved in production which include labor, materials, supply, hidden cost corrections, overhead cost expenses, target profit margin parameter, salaries, salary incentives, foreign currency conversions, etc.

g) "determining an actual production cost as a function of the material cost, the operator cost, the equipment cost and the indirect cost"; and "generating cost comparison data as a function of the actual production cost and a scheduled production cost"; see at least the numerous comparison reports of actual versus scheduled production data between different periods, trends, etc.;

l) "generating a productivity report based on the time analyzed operator information and equipment information"; see at least the numerous reports involving operator and equipment information, including the worker productivity reports, individual plant productivity reports, etc.

9. Also most notable from the Summary of the Invention of Musafia et al., with respect to "costs":

> [0010] In accordance with still other aspects of the invention, the use of multiple cost databases, linked to user-determined and computer-determined parameters, permits cost estimates for jobs to be calculated based on a target profit.
>
> [0012] In accordance with still other aspects of the invention, the use of multiple cost databases, linked to user-determined and computer-determined parameters, allows the monitoring of the use of materials and supplies on the production line to determine flawed or inaccurate supplies or wasteful or inaccurately planned manufacturing processes.
>
> [0013] In accordance with yet other aspects of the invention, the system monitors and analyzes item production statistics with the ability to compare current data with historical values and make future projections.
>
> [0014] In accordance with yet other aspects of the invention, the system monitors and analyzes the labor time necessary for all jobs involved in manufacture, identifying production flaws and the cost of the flaws to the production process.
>
> [0015] In accordance with yet other aspects of the invention, the system monitors and analyzes both general plant productivity and each worker's personal productivity with period-to-period comparison, identifying, monitoring, and cost-quantifying inefficiently used labor as well as the incidence of non-productive labor.

10. The differences between the instant claimed invention (independent claims 18 and 43) and that of Musafia et al. lie in the actual depiction or description of a "production line" and the necessary or requisite sensory equipment, and the "real time" aspect of the instant claimed invention.

11. Fig. 1 of Musafia et al. shows a block diagram of their productivity monitoring system. All of the production monitoring data is being collected and/or has been collected by various inherent sensory equipment residing within a production line

elsewhere, and this production data is all located in memory 20 connected to server 10 of Fig. 1.

12. The need for remote acquisition of "real-time" factory production line data from a variety of sensory equipment residing at or near a production line was recognized *at least fifteen years ago.* Lin et al. disclose :

> ABSTRACT -- This paper presents a real time measurement system for factory automation to improve the operation of quality control and production control. The factory under study has multiple production lines in separate areas. Functions of the proposed system is to monitor quantities of all check, points in production line; to calculate exact work-man-hour during production; to measure all characteristic test data; and then to convert the measurement data into analytical statistics. A local measurement unit (LMU) is designed using Z-80 micro processor, which handles all operational functions. The LMU is capable of by-pass data transmission and cascade expansion for larger factory arrangements. The main system is designed with a PC-XT micro computer for data storage and analysis. In this paper, system analysis together with the automatic testing procedures and the time-sharing programming are presented. Significant improvement in operation efficiency and labor reduction for quality control and production control is achieved. It is a very practical design for real time applications in factor automation for labor-dependent production lines.
>
> Key Words: Factory Automation, Real Time Measurements, PC-based Control.

13. Lin et al. also clearly discuss the actual production line of a factory and show the actual requisite sensory equipment needed for real-time remote data acquisition. See at least Figs. 1 and 6 of Lin et al. reproduced below.

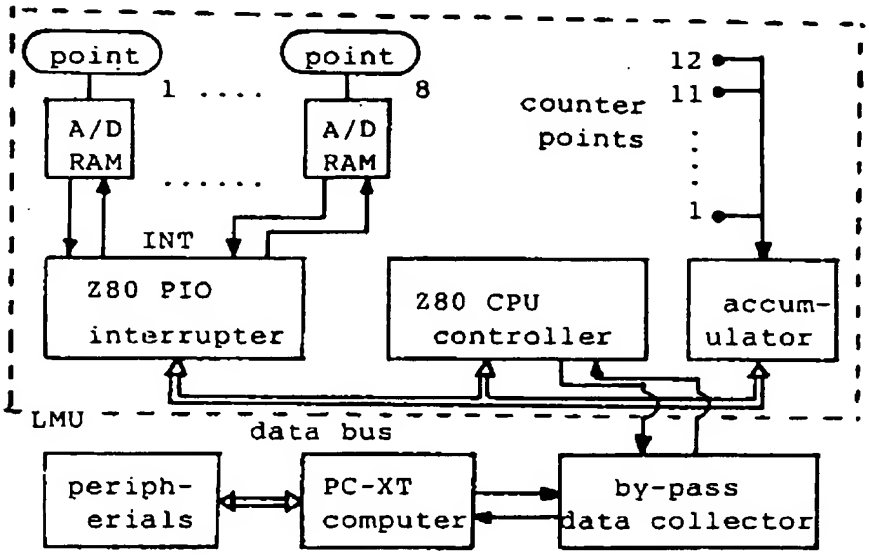

Figure 1. The proposed PC-based real time factory automation measurement system.

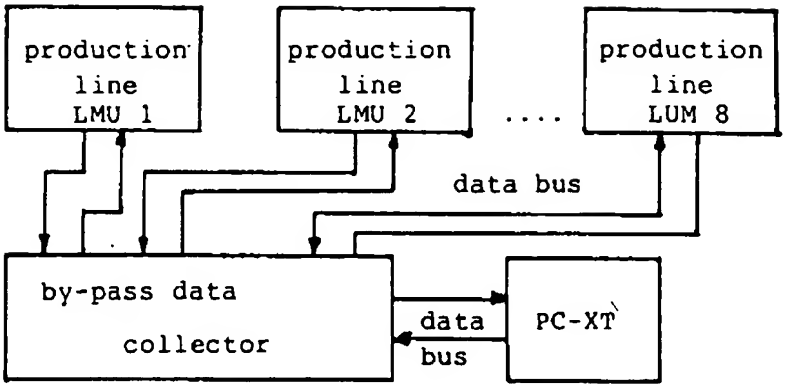

Figure 6. Operation of by-pass data collector with LMU's and micro computer.

14. Szabados also discloses an intelligent monitoring system used to control remote asynchronous production systems. More particularly, he discloses:

> *Abstract: A large amount of information is required to effectively manage a flexible asynchronous production system, such as a Car Assembly Plant in Oshawa, Ontario. Such system is highly influenced by human factors. An Intelligent Production Monitoring System (IPMS) was developed specifically for this production system. IPMS is a medium for presenting a vast amount of relevant, real-time and historical production information to the Car Plant management staff. Together with the standard predictive on-line models it allows experienced supervisory staff to arrive at operational decisions during shifts.*

15. Most noteworthy is that a "vast amount of relevant, real-time and historical production information" is gathered.

16. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the acquisition of production and other production-related data in "real-time" as taught by either Lin et al. or Szabados, into the "productivity monitoring system and method" of Musafia et al., because such a combination provides production managers a "bird's eye view" (Szabados, pg. 35) of a plant in real-time, and also provides significant improvements in operations and labor management and efficiency and trend-forecasting, in an omnipresent quality and cost-conscious environment (Lin et al., pg. 57).

17. Note that *motivation* may also be explicitly found in the Summary of the Invention of Musafia et al., where we see [with emphasis added]:

> [0003] The provision of a service or the production of a product often includes a number of tasks that must be performed, often in series. Particularly for products and services that are produced in quantity, the effort required to perform the predetermined tasks can be monitored to analyze many factors related to production. Over time, the collection of production data allows the calculation of expected costs, times, and other production aspects. As production continues, current values can be compared with expected values to assess whether individual workers or the system as a whole is progressing efficiently. ..
>
> [0005] The present invention comprises a system and method for monitoring and optimizing product or service output and worker productivity for a business in which products and services are produced in a manner that involves a plurality of tasks and which can include multiple workers involved simultaneously in the manufacture of a single product. Productivity is optimized by the collecting, analyzing, and reporting a variety of data...

[0013] In accordance with yet other aspects of the invention, the system monitors and analyzes item production statistics with the ability to compare current data with historical values and make future projections.

[0014] In accordance with yet other aspects of the invention, the system monitors and analyzes the labor time necessary for all jobs involved in manufacture, identifying production flaws and the cost of the flaws to the production process.

[0015] In accordance with yet other aspects of the invention, the system monitors and analyzes both general plant productivity and each worker's personal productivity with period-to-period comparison, identifying, monitoring, and cost-quantifying inefficiently used labor as well as the incidence of non-productive labor.

18. And most notable is paragraph [0021] of Musafia et al. with emphasis added by the Examiner:

[0021] The linkage of all the above aspects of manufacturing into one management program allows a complete and real time control over profit generation unattainable by standard accounting procedure or by other methods available.

19. As per dependent claims 19-24, and 34-46, which relate to "analysis" and then "comparison" of numerous other production-related data, see at least the numerous types of production and production-related data gathered and extensively processed by Musafia et al. in at least Fig. 2 (reproduced above), or see the numerous production data and statistics gathered and processed of Lin et al., or see the "vast amount of relevant, real-time and historical production information" of Szabados.

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Assouad whose telephone number is 571-272-2210. The examiner can normally be reached on Tuesday-Friday, 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J Assouad
Primary Examiner
Art Unit 2857

pja